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CALFHOOD DISEASES

2. Respiratory and nutritional deficiency diseases

By M. R. GARDINER, B.S. V.M.D., Chief Veterinary Pathologist

RESPIRATORY DISEASES

MOST of the common organisms found in the environment of calf sheds and yards may at times be responsible for respiratory infections, to which the young animal is very susceptible.

Often these organisms, such as Pasteurella, Salmonella, coliforms or Corynebacteria, may be actually harboured or carried by the animals, apparently harmlessly, only to invade the lung tissue and set up pneumonia when other factors intervene. In this respect, the respiratory diseases of calves resemble the gastrointestinal infections since so frequently both forms of disease may follow stress conditions.

The respiratory diseases of calves often follow conditions that lower resistance. The special association between the stresses of travel and respiratory disease has been well-known for many years, and described in other countries as "shipping fever." Apparently no similar condition has been identified in Australia, presumably due to the much milder climate here than in countries where shipping fever is prevalent.

As in man, "colds" and upper respiratory infections are much more likely to occur during cold, wet weather. Exposure in cold, draughty sheds during early life may soon be followed by acute pneumonia. The usual Australian practice of allowing unweaned calves access to paddocks with their mothers, is sound in that considerable protection and warmth will be afforded by the dams, or by natural shelter.

The absence of natural shelters such as a windbreak of trees or shrubs, hay stacks, and so on, on many farms undoubtedly contributes to the loss of young animals during periods of climatic stress. Confining young calves to pens or tying them up during inclement, cold weather should be avoided as it is often impossible for them to protect themselves against winds and draughts.

Pneumonia in calves is relatively uncommon under three weeks of age, but most commonly occurs between the first and second months of life.

As in gastro-intestinal infections, young calves raised in isolation with their dams on clean, uncontaminated places are not often affected with respiratory infections, most of which are acquired from carrier animals under conditions of overcrowding, dampness and chilling.

Viruses

The role of viruses in respiratory diseases in West Australian calves is unknown.

Elsewhere, a virus belonging to the parainfluenza group is now thought to be important in paving the way for the
recognised bacterial invaders. Another virus, either influenza-like or a closely related virus, is apparently associated with some of the pneumonia and enteritis found in the young calf. Many cases of pneumonia follow attacks of calf scours.

We have recently isolated the virus responsible for infectious bovine rhinotracheitis in Western Australia. The initial isolation followed an outbreak of severe brain disease in a calf herd being weaned on a Donnybrook property. Upper respiratory signs, similar to the common "cold" were prominent in this herd. The virus has since been isolated from the noses of carrier cattle on other dairy farms. Besides on rare occasions, causing the encephalitis which was its first clinical manifestation in this State, I.B.R., as it is called, is recognised in other countries as a cause of bovine abortion, genital infection and eye infection, so it may be a good deal more important in this State than is recognised at the moment.

Poor, debilitated calves may suffer secondary infections with the organism that causes foot rot in cattle, the necrophorus bacillus. This infection is called calf diptheria and involves the throat region in calves of three to six months or older. It may also cause abscesses in the lung. These calves usually die after a more protracted course than most calfhood diseases.

Lungworms are likely to be troublesome during the late winter and spring, causing ill-thrift, chronic coughing, and rapid respiration. The conditions associated with their presence are called "parasitic bronchitis" and "verminous pneumonia" and, of course, often precede the development of severe or fatal bacterial pneumonias. Certain drugs with high efficiency against lungworms are now available, but one of those (Mintic) which also has an effect on gastro-intestinal worms is recommended because lungworm infestation is almost always accompanied by this other form of parasitism.

DEFIciENCY DISEASES

Although nutritional stress is common in all livestock at certain times of the year in Western Australia, little is known about specific deficiencies of the calf in this State.

Cobalt

Calves are more tolerant than lambs to cobalt deficiency but still cannot thrive, or even survive for long, on severely cobalt-deficient country such as in many western coastal sands, especially when they begin to live off grazing rather than from their mothers or on milk substitutes. Fortunately, most farmers are aware of this danger and we seldom see serious cobalt deficiency in calves today.
Copper

This is also true where copper is concerned. Most agricultural lands have been top-dressed with copper and copper deficiency is seldom encountered in the young calf nowadays. Nevertheless, when beef calves are depastured on coastal country or even on some inland uncleared land, copper deficiency syndromes may develop. The better understood of these include fading hair coats of pigmented breeds, scouring syndromes and failure of skeletal growth or bone development. It should be borne in mind that the growing tendency to apply molybdenum to pastures may induce copper deficiency diseases in calves and other classes of ruminants on properties where plant copper is low or marginal.

Selenium

We can say little at the present time about selenium in relation to calf diseases. A limited plant survey of the west coastal dairy districts has shown little evidence of selenium deficiency but further inland outside the irrigation districts and in the lower south-west where we know selenium may be profoundly deficient, it would not be surprising to find selenium-responsive diseases in calves as we do in lambs. There have been some reports of favourable response to selenium in improving thrift of calves in some of these districts, but no controlled studies supporting these reports have been carried out so far. We have seen white muscle disease in newborn calves on only 3 occasions in Western Australia in contrast to the exceedingly common occurrence of this selenium deficiency disease in sheep in the same districts. The reasons for this difference are not known.

Vitamin A

The only other deficiency likely to occur in the calf under modern husbandry practice is vitamin A. Calves are quite susceptible to vitamin A deficiency which predisposes to enteric and respiratory infections (as discussed in the first part of this article), failure to grow, interference with bone development, nervous disorders, unthriftiness, and blindness.

Frank vitamin A deficiency has not often been recognised in Western Australia and it is impossible to say with any assurance what the true situation may be. In most districts outside the irrigation districts, where dairy and beef cattle are raised, green feed, the main source of vitamin A, may be in short supply or absent during much of the summer and liver stores may become greatly depleted. Vitamin A is present in high concentrations in colostrum, and this is one of the reasons why calves should always get the first colostrum drink from their dams. During periods of lack of green feed, a vitamin A supplement may be advisable for growing calves.

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